US Army Corps of Engineers®

R&D Program: TOWNS

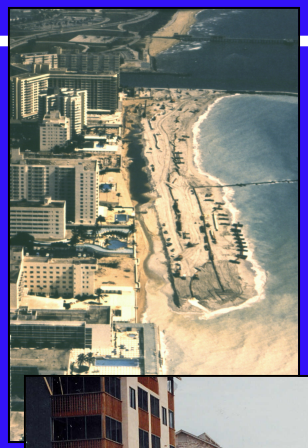
Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

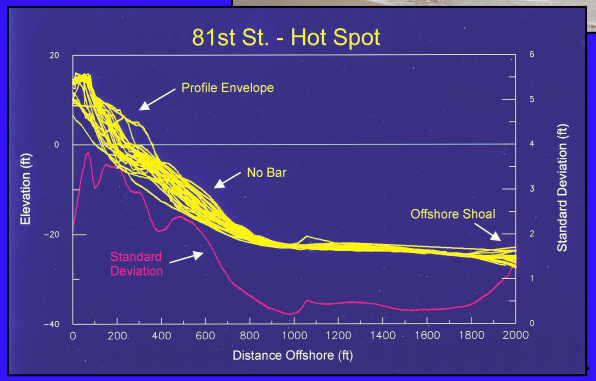
Needs & Problems Addressed:

- Impact of coastal storms and the non-uniform performance of beach nourishment projects for coastal storm and flood damage reduction can result in the expenditure of considerable operation and maintenance and emergency operations resources
- Corps requires a standard method to quantify vulnerability, identify renourishment needs and assess risks in not renourishing

Objectives: To improve -

- Justification for renourishment
- Hot spot identification
- Risk assessment and remediation
- Guidance on storm damage mitigation





US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

Work Unit Funding Profile:

FY03	FY04	FY05	FY06	Total
$150k	$175k	$200k	$0k	$525k

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

Business Program/Missions Areas Supported:

- Inland Navigation __ %
- Coastal Navigation __ %
- Coastal Storm Damage Reduction 60 %
- Inland Flood Control/Damage Reduction __ %
- Environmental Protection & Quality 40 %
- Multi-Purpose (Hydropower, Rec & Water Supply) __ %
- Emergency Management __ %
- Regulatory __ %
- Support for Others __ %

(Must to add to 100%) Total: 100 %

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

CW Strategic Goals Check List: (check if applies)

- Provide sustainable water resources development & mgmt _X_
- Restore past environment degradation _X_
- Provide project services of high quality _X_
- Reduce losses from natural & manmade hazards _X_
- Supports being a world class technical leader _X_
- Addresses strategic or system needs in a framework or integrated approach by developing:
  - Methods or decision support tools _X_
  - Technology to improve life cycle productivity ___
  - Technology to monitor systems, provide feedback and develop operating guidance ___

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

Which “short term” field needs does this support:

- Improves efficiencies, enhances performance, and effectiveness, in planning, design, and O&M of Corps’ coastal projects
- Enhances service life through improved design
- Preserves environmental sustainability of coastal projects
- Reduces life-cycle costs by providing O&M tool
- Increases public safety associated with Corps coastal FDR projects

Field Review Group Relative Ranking:

- TOWNS FRG planned 21-22 August 2002

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

Listening Sessions Check List: (check if applies)

- Improves data sharing/exchange with the public in these areas:
  - Provides one stop shop for maps & data for basin wide planning ___
  - Provides data to make informed decisions _**X**_
  - Provides a system for basin wide planning ___
  - Provides information about what is happening at Corps facilities _**X**_ (up to date web sites)
- Tech Transfer plan to include educating the public _**X**_
- Coordinate research, models, analysis with regulatory agencies to insure results will be accepted _**X**_
- Develop R&D products:
  - For watershed management plans, not just at the project level _**X**_
  - To include aesthetics as components of all projects ___
- Create better models for ground & surface water ___

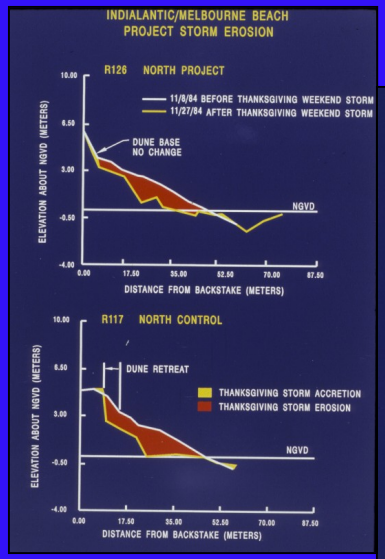
US Army Corps of Engineers®

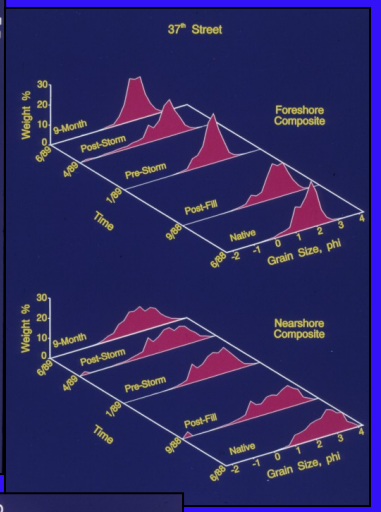
R&D Program: TOWNS

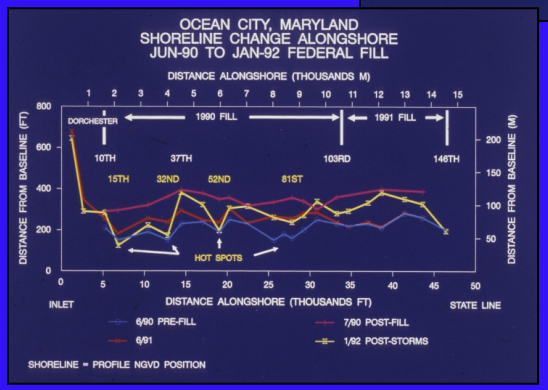
Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

Products:

- Workshop for ID problems and obtain lessons learned
- ETL remedial approaches to hotspots
- TN Corps experiences in beach-fill renourishment
- IR risk based justification for emergency renourishment
- ETL tools to evaluate renourishment
- EM update on developments in fill material assessment







US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

Benefits

- Direct:
  - Can decrease O&M and emergency operations cost through effective design
  - Potential significant ROI
- Indirect:
  - Provides fundamental knowledge to improve planning, design, O&M of Corps project
  - Enhances capability for evaluation of project alternatives
  - Provides risk reduction through improved designs

US Army Corps of Engineers®

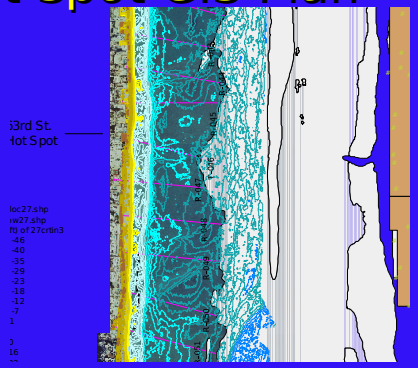
R&D Program: TOWNS

Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

Technology Transfer Plan:

- Workshops
- Guidance documents (ETL, IR, EM)
- Technical reports
- GIS applications
- PROSPECT training workshops
- Dissemination through TOWNS website

63rd St Miami Beach Hot Spot GIS Plan



US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Quantifying Vulnerabilities in Coastal Flood Damage Reduction Projects

Why should the Corps fund this R&D, instead of private industry and/or others:

- Coastal flood protection is specialized government function

What is Impact if not started:

- Continued higher cost of O&M and emergency operations due to non-optimized designs
- Potential high risks to public safety if effective projects are not identified and constructed